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Merida, Mexico, 10-14 April 2000

RESEARCH AND TRANSFER OF TECHNOLOGY IN FOOD PRODUCTION

INTRODUCTION

1. The Plan of Action ratified at the 1996 World Food Summit in Rome urged international and national agricultural research systems to place greater emphasis on conserving natural resources, preventing the disappearance of biodiversity, promoting combined or diversified agroforestry systems, encouraging simple low-input technologies for marginal farmers, developing technological innovations that give women equal access to and participation in agriculture, fishing and forestry, and directing cooperation between the private and public sectors towards the achievement of food security.

2. In Latin America and the Caribbean, an average 0.5% of the region's GDP from agriculture is invested in agricultural research and development. This contrasts sharply with the proportion invested in agricultural research in the developed countries, which is around 2.5%. For this reason the main trends have to be reviewed and new technology policy instruments proposed for the region (Byerlee: 1988). The emerging key aspects of the new paradigm are:

- the structure of agricultural technology research and development and its plurality of entities and agencies, public and private;
- new technological demands (environmental and biodiversity conservation, product quality, biotechnologies and information technology);
- new arrangements to finance agricultural research and development, with competing funds and fixed-term contracts playing an increasingly important part;
- the improving efficiency and effectiveness of public research and extension agencies;
- closer national and regional links between agricultural technology research and development institutions and the scientific community;

- greater opportunities for intraregional cooperation;
- new and improved approaches to training programmes for researchers and extension workers.

CHALLENGES TO AGRICULTURE IN LATIN AMERICA AND THE CARIBBEAN

3. *In most Latin America and Caribbean countries agricultural policy reforms were implemented within the wider framework of economic reform.* In nearly every country there are now indications of attempts to design specific policies for agricultural technology research and development (De Janvry, Key, Saudulet: 1997).

4. *In the countries of Latin America and the Caribbean (LAC) agricultural production barely accounts for 7.3% of the region's GDP.* Nevertheless, agricultural production in many countries forms the basis of a large proportion of commercial and industrial activity. Because of its importance in terms of food supply, agriculture also plays a major part in determining the real incomes of the population as a whole.

5. *Latin America is the only region in the developing world with a large agricultural commodity trade surplus.* However, most of this trade surplus is generated in the countries of the Southern Cone. The other Latin America countries have a smaller surplus and some countries are in deficit. Most of the Caribbean countries are also in deficit. It is important to ensure that market signals reach the farmers and that they have the necessary technical and financial resources to be able to respond productively.

6. *Agriculture in LAC provides employment for a decreasing proportion of the work force (35 percent of the EAP in 1980, 20 percent in 1999).* This is due to a sharp increase in work force in other sectors, while over the last two decades agriculture has regularly employed just over 40 million people. Rural poverty has not diminished. It is estimated that 55 percent of the rural population is poor and actual numbers have increased by 80 million. One-third of these live below the extreme poverty threshold, with incomes below what they need to acquire the basic food basket. These poverty indicators illustrate the magnitude of the problem which agricultural technology research and transfer and the ongoing institutional reforms in the National Agricultural Research Systems (NARS) must help to overcome, while revising other agricultural policy instruments.

7. *The region has abundant natural resources in proportion to its population, which is important in terms of its world-wide conservation responsibilities.* The countries of Latin America and the Caribbean account for 8 percent of the world's population, but possess 25 percent of the world's potentially arable land, over 40 percent of the world's tropical forests, 23 percent of total livestock and about 30 percent of the worlds freshwater reserves.

8. It is thus clearly necessary to adopt a new approach to rural and agricultural development in order to ensure food self-sufficiency, which is under threat in a number of countries of Latin America and the Caribbean; to conserve the natural resource base; and to guarantee social equity and economic sustainability. This also entails making major changes in the way the National Agricultural Research Systems (NARS) in the countries of the region are operated.

RESEARCH AND TECHNOLOGY TRANSFER IN LATIN AMERICA AND THE CARIBBEAN

9. After almost three decades of rapid expansion of the National Agricultural Research Systems (NARS) it has now become urgently necessary to review current technology policies which strongly condition the performance and relevance of the NARS at the end of the Nineties. After the period of steep regional growth up to the beginning of the Eighties, most of the Eighties and Nineties have seen institutional stagnation and a fall in the resources available to finance the generation of agricultural technologies. The emerging pattern of agricultural technology research and development is based on the following elements: a plural institutional system, new technologies and technological demands, new human resource requirements for research into new technologies, new financial institutions and procedures, new demands for agricultural extension, and operational changes geared towards greater decentralization of the NARS.

A DIVERSIFIED AGRICULTURAL TECHNOLOGY RESEARCH AND DEVELOPMENT SYSTEM

10. *In most LAC countries, institutional pluralism contrasts with the former model that revolved almost exclusively around the public sector.* The participation of multinational corporations in the larger countries of the region, universities, producer cooperatives and associations, non-profit NGOs, international cooperation agencies, multilateral development banks and regional research funds is making the NARS much more complex. Synergy between the different agents involved in technological change - and the institutional arrangements to make it possible – constitutes one of the main thrusts to be pursued in relation to technology policies.

11. *In recent years there has been a comparatively large increase in investment in agricultural technology research and development by the private sector,* for example in relation to plant biotechnologies and improved seeds, over which the large multinational corporations have a virtual hegemony. Private sector investment in agricultural technologies in the LAC countries is currently estimated at less than 10 percent of total research expenditure in most countries, exceeding 30 percent in only a few cases (Pray-Umali: 1998). Conversely, in the developed OECD countries private investment in agricultural technologies averages almost 47 percent of total agricultural research expenditure and, in the case of the US and UK exceeds 50%. The empirical survey shows that private investment in agricultural research by large corporations is concentrated in countries which have industries that can exploit a large market with strong growth rates, effective legislation to protect intellectual property and varieties, and skilled human resources and infrastructure. But the other countries in the region which do not possess these requisites cannot expect any significant increase in private investment.

12. This new institutional structure, with the participation of large multinational corporations in frontier agricultural research, has led to some commodities and issues being ignored by the private sector despite being important to marginal producers. At the same time, natural resource conservation and the development of technologies to protect the environment are public assets that should be treated as such.

NEW TECHNOLOGICAL DEMANDS

13. *A time-elastic approach is needed to deal with the sustainability of agriculture and natural resources.* Some of the elements that differentiate the current paradigm of sustainability of agriculture and natural resources from the previous technological paradigm include

(Trigo:1995): the multi-purpose nature of sustainable development, for which a systemic and interdisciplinary perspective must be developed; the spatial dimension rather than the product (production systems) as the key to selecting priorities; the need to timescale activities and balance the "productivity" of present actions against impact on future capacity of production systems; the fact that sustainability raises the issue of flaws in the market and the limited usefulness of market signals to direct decision-making on natural resource use and conservation.

14. *A series of new technological demands are emerging regarding product quality and agro-industrial and agro-commercial integration.* Changes from increased urbanization and changes in the labour market are impacting on demand for food and nature of food product. The increase in consumption of processed and/or prepared foods, fast foods and the premium on quality and safety product is creating a new food market scenario, obliging countries to adopt strict control standards.

15. *Production chains must be integrated to meet these new contemporary food market trends.* The “productivity paradigm” must coexist with the “quality paradigm” (Salles Filho: 1998).

16. *Scientific development and paradigms of biotechnology and information technology in agriculture have been reshaping the very scientific bases of the traditional technological models that have prevailed in the region since the Fifties.* The emergence of genome biology, genetic modification and bioinformatics are revolutionizing the bases used to address and solve technological problems (Salles Filho: 1998). FAO’s REDBIO Network comprises 528 laboratories in 27 countries for the development and application of biotechnology adapted to national ecological and production conditions. Small producers will have to view the decision to adopt a particular technology in terms of increased competitiveness and simultaneously as a means of conserving available natural resources.

17. The “break” from the previous paradigm can only be bridged through appropriate institutional, operational, human resource and financial bases in a position to take up the challenge. The agricultural technologies in the new paradigm have great development potential. The technological model under gestation will have to be based on biotechnological processes and on information instead of being centred around mechanical, chemical and energy-intensive processes (Salles Filho: 1998). The NARS will therefore have to make an enormous effort to reconvert the technologies that underpin the regional agriculture production model.

AVAILABLE HUMAN RESOURCES

18. *Available human resources to meet the new technological demands are insufficient in number and expertise.* The human resources available in Latin America and the Caribbean are estimated at approximately 11,000 technicians, of whom about 53 percent are working in institutions in the Southern Cone, 32 percent in the Andean area, 14 percent in Central America and one percent in the Caribbean (Etcheverría: 1998).

19. Regarding their higher-education qualifications alone, just over 40 percent of the personnel in LAC have completed postgraduate courses and only 12 percent have a doctorate - a very poor proportion of advanced qualification. More important still, the bulk of expertise is in the production-oriented paradigm typical of the Sixties to Eighties.

THE NEW AGENTS AND FINANCING INSTRUMENTS OF THE NARS

20. *The new instruments for financing agricultural research must be consistent with the diversified nature of the NARS.* Estimates on overall annual financing of research and development in LAC vary between US$ 600 million and one billion, including the national agricultural research institutions, which account for 75 percent of the total (Etcheverría:1998). In the past few years, the increased number of researchers has not been accompanied by a comparable increase in funding, so researchers' salaries have fallen and operational capacity of institutions has declined. The public sector will continue to play a very important role in financing the system, particularly research into areas that do not generate private benefits.

21. *Donor agencies, which played a very important role in the past in financing infrastructure and human capital, have been reducing their comparative share in recent years.* However, financing by multilateral development banks has increased in proportion. All estimates indicate that returns on research and development investment are very high. Despite this, governments are not always willing to accept this source of financing for technology research and development.

22. *Competing funds are a novel and powerful means of tailoring research resources to producers' needs.* These funds are provided by governments, foundations, donors or development banks and help to improve the efficiency of the NARS by fostering complementarity and division of work between institutions. The marketing of products such as improved seeds, using the new patent legislation, consultancy services and technical assistance offer institutions new sources of financing, but cannot be expected to cover a major proportion of their budgets. In the region, various types of joint venture between public and private sector have also been tried in order to spread research costs, avoid duplication of effort and gear research to the new demands of the private sector (Etcheverría, Trigo, Byerlee: 1996).

CHALLENGES FOR AGRICULTURAL EXTENSION

23. The incorporation of technological progress into Latin American agriculture has clearly been heterogeneous. The differences in productivity between the recommendations of the Experimental Stations, the frontier producers, and marginal farmers have been huge in every country.

24. Closing this gap largely depends on agricultural extension. Current institutional reforms are encouraging greater participation by private extension services and the re-engineering of the former official extension agencies. Most existing Technical Assistance and Rural Extension (TARE) institutions are not in a position to operate efficiently, because:

- agricultural faculties and colleges generally provide inadequate training, with the result that TARE agents do not have the skills needed to help solve producers' production and economic problems;
- the inadequate operating resources available to the TARE services prevent the extension agents from remaining in the field as long as would be desirable;
- they still use costly in-person methods that have limited coverage, instead of lower cost methods with broader coverage.

25. This new approach to TARE makes it possible to reason in technical terms for each production system and to consider the whole household as the effective agent of technological change. Also, with this approach, the development process is seen as a gradual incremental process, moving from less to more, completing each step before moving up to the next.

26. The bioinformatics paradigm is open-ended in the sense that the technological paths defined also depend on current policy orientations and institutional adjustment. More decentralized models for managing institutional resources, participation of NGOs and universities and the restructuring of public extension and research agencies around new operational and financing procedures could produce an agricultural model in which the marginal sectors of the rural environment are more widely present and have a more clearly defined role in the institutional direction of the technologies that affect them.

THE DECENTRALIZATION OF THE NARS AND ECO-REGIONS

27. *It is also vitally important to move towards institutional models that complement public and private institutions and in which operational decentralization and the organized participation of producers, including household producers and small farmers, in steering technological demand are incorporated into the institutional framework of agricultural research.* Organizing the NARS by eco-region must therefore be borne in mind. An eco-region is a geographical area with common climatic, soil and natural vegetation features, with common constraints and in which there exists agricultural production potential. These factors, taken together, define comparative advantages for the production of different items and thus influence the adoption of relatively similar production systems.

28. The basic and most logical organizational unit for planning and coordinating research, and for transferring agricultural technologies, is the eco-region, by explicitly placing activities and efficient resource use in the context of comparatively homogeneous and complementary production systems. Organization of the NARS around natural eco-regions makes it possible to regionalize research resources and decision-making. The market and food security should be the entry points of production systems, bringing together and enhancing the work of the local institutions in the NARS. Working in terms of eco-regions guarantees the **replicability** of research and technology transfer, and also offers considerable operational advantages by exploiting existing local infrastructure.

TECHNOLOGY POLICY SCENARIOS AND THE SMALL PRODUCERS

29. A number of simplistic scenarios have been determined to shape the future in this regard. While not entirely absolute, the three identified scenarios are useful for purposes of discussion. (Salles Filho: 1998 pp.236-237):

- the first scenario - "institutional inertia" - is characterized by an intensification of output from traditional activities (particularly commodities) using widely available technologies, seeking to cut unit production costs by increasing productivity. This is a scenario which protracts the institutional pattern and the technological packages inherited from past decades.

- under the second scenario - "correcting course" - technology policies are directed by the intensification of traditional activities using conventional technologies, but rationalizing the criteria for input use. Land is concentrated, but on a smaller scale, and employment generated is limited, but more highly skilled.

- the third scenario – “paradigm transition” - is characterized by the intensification of traditional activities and the introduction of new aspects geared towards specific forms of consumption and qualitative aspects which determine market differentiation. Traditional and modern technologies are used (biotechnology and information technology), with a preference for those requiring fewer inputs. There is greater integration of small producers and generation of skilled employment (Salles Fieho: 1998)

30. From the institutional point of view, the restructuring of the NARS with greater involvement of private agents in running the research and extension agencies also weakens the support base of the inherited model. The NARS necessarily vary from one country to another in accordance with national situation, but the criteria for their basic design should be comparatively similar. They must be:

- **open-ended,** involving universities as well as all national and international, public and private agencies connected with technology transfer and research.

- **competitive**, with funding from government and a range of financial entities (multilateral banks, regional research funds, international co-operation) as competing funds.

- **dynamic,** with the ability to respond to the challenges of internal and external competition created by the opening up of borders.

- **environmentally sustainable**, in the sense that the technological responses help to prevent and contain the deterioration of natural resources.

- **decentralized,** guaranteeing adequate participation of other sectors, and in particular agricultural producers, in their financing where appropriate, and in the running and directing of key institutions, involving small producers in broad-spectrum institutional plans.

TECHNOLOGY POLICY PRIORITIES FOR THE REGION

HUMAN RESOURCE TRAINING

32. The challenge in this case is to create a critical mass of new researchers and technologists at national and regional level capable of increasing the generation and promoting the adoption of bioinformatics innovation for agriculture. This demands improved postgraduate training in the countries in the region, and training in centres of excellence in the developed countries.

33. In parallel, far-reaching changes must be introduced into the kind of education provided in agricultural colleges and faculties of agriculture and veterinary science, so that graduates have a systemic and holistic vision of every link of the agricultural process and the skills to formulate and apply solutions that match the technological and economic level of each producer. In these institutions of formal education, "on the job training" must also be applied directly in the field, on

farms, in village communities, in agro-industry and in agricultural markets. Farmers require professionals who can teach them how to carry out more efficient and profitable agricultural activities to enhance their ability to compete in a globalized environment.

34. Radical changes must be made to the basic educational programmes of rural schools, from the first to eighth or ninth grade, adapting teaching methods and curricula to daily needs and work in rural areas, including: agricultural production, association and solidarity, home economics, hygiene, prevention of disease and first-aid etc; all this with the aim of developing the latent potential of future farmers of both sexes.

LEGISLATION ON INTELLECTUAL PROPERTY AND GENETIC RESOURCES

36. Various types of intellectual property regimes are becoming increasingly important in relation to agricultural technology generation and dissemination activities in the region. Some of the most important are: industrial confidentiality (for example, hybrid seeds), patents (for processes and products, such as diagnostic kits, vaccinations, agricultural machinery), utility models protecting the external or internal configuration of parts of the product (agricultural machinery and parts), breeder rights (products from traditional plant improvement) (Correa:1999). Various international conventions apply to intellectual property in the countries of Latin America and the Caribbean.

36. Several countries in the region have also signed agreements on intellectual property (Bolivia and Mexico, the Andean Group, Mercosur) which have different coverage and instruments. In the Andean Group, intellectual property has undergone a radical change over the past ten years. Within Mercosur, instruments have been negotiated laying down minimum standards regarding trademarks, designs, copyright and related issues. At the Americas Summit held in December 1994 intellectual property was also a negotiation item on the agenda. (Correa: 1999).

37. The FAO International Undertaking on Plant Genetic Resources, adopted in 1983, recognized that "nations have sovereign rights over their plant genetic resources". The Undertaking provides for a system of "free access" to plant genetic resources, provided that these are requested for scientific research, or for the improvement or conservation of genetic resources. (Correa, 1999). At the present time, this Undertaking is being revised in order to make it compatible with the Convention on Biological Diversity.

38. There is no doubt that intellectual property rights over innovations is becoming an increasingly important instrument for appropriating research results and is an aspect of primary importance for attracting foreign investment to promote "frontier" research in the region. The international framework comprises a number of administrative conventions of the World Trade Organization and the Agreement on Trade-Related Aspects of Intellectual Property Rights.

39. These issues must be debated and appraised in the NARS institutions and regional research organizations, and due account must be taken of the differing scope of patent legislation and breeders' rights to protect and exploit the results of NARS research. With the spread of genetically modified varieties, the "interface" between these two sets of legislation is becoming increasingly important, especially the effects of a patent on a component of the material used for genetic modification (Correa:1999).

REGIONAL COOPERATION AND THE ENHANCEMENT OF THE NETWORKS

40. The regionalization of cooperation through networks is an instrument of primary importance in technology policies in Latin America and the Caribbean. The region has a rich history of horizontal cooperation and exchange networks (PROCISUR, PROCIANDINO, PROCITROPICOS, TROPIGIB/REDBIO) which constitute a first level of interlinkage. However, the modern concept of networks involves aspects that go beyond academic exchanges in seminars or the exchange of researchers, and are increasingly influencing the development of joint agricultural technology Research and Development projects. It is vitally important to consolidate the implementation of these cooperative research initiatives.

41. Most of the technologies associated with the design of production systems and land use have a direct bearing on the construction and impact of dams, bridges, roads, ports etc. In some regions, the integration process taking place in different countries can simultaneously modify urban development and affect the siting of production systems and the validation of technologies in terms of the markets (Diaz Rossello: 1997). The design of these projects clearly reveals the need to enhance horizontal cooperation in the region, and to steer it in a new direction.

42. The number of developing countries represented in the Consultative Group on International Agricultural Research (CGIAR) has now risen to 21 of the 43 member countries. Regional organizations are also playing an increasingly active part in financing and directing the CGIAR agenda.

43. On 31 October 1996 the Global Forum on Agricultural Research (GFAR) was established. This Forum comprises representatives of the National Agricultural Research Institutes (NARIs), regional and subregional institutions, Advanced Research Institutes (ARIs), universities, non-governmental organizations (NGOs), producers' organizations, the private sector, International Agricultural Research Centres (IARCs), and the donor community. In Latin America and the Caribbean, the GFAR operates through the Regional Forum on Agricultural Technology Research and Development (FORAGRO), under Mexico's current the presidency. FORAGRO is implementing a number of activities to strengthen cooperation between technology institutes in the region, including the establishment of the Latin America and Caribbean Regional Information and Technology System (INFOTEC) which is designed to facilitate the exchange of information on research results and available technology between the countries of the region, and with research centres in other parts of the world. CGIAR co-operates with this Forum which is seen as an ideal vehicle for strengthening ties with the National Agricultural Research Institutes (NARIs) of the developing countries.

44. In 1997 CGIAR began a comprehensive review of the System. In the System Review Report drawn up in Beijing on 29 May 1999, the NARI group representing the developing countries proposed that the present arrangement for regional representation should be changed, considering that 50% of the CGIAR member states were now developing countries (Annex 1). FAO sees the NARI Committee as an appropriate body for channelling the technological demands of developing countries, and that the demands should be put on the CGIAR agenda.

FINAL CONCLUSIONS

45. As stated above, the NARS in the region are facing an enormous challenge of readjustment to come to terms with the new institutional, technological and political factors that determine their work. This has led to the establishment of a decentralized model for managing research and technology transfer, with the increasing participation of a wide variety of different

agents and with a greater presence of private investment in the financing and management of institutions.

46. Environmental technology policy, technologies for small and medium agricultural production, control of food quality and safety and legislation to protect intellectual property are just some of the areas in which the public sector will have a fundamental executive and guiding role.

47. The operational and administrative decentralization of public institutions and the implementation of joint public/private projects are increasingly attractive lines of action that need to be strengthened.

48. In this process of institutional adjustment, the NARSs have to operate at "two speeds". The first involves examining demands that can be covered using the "inventory" of available technologies generated by national research in the past. The "second speed" refers to working around the new "technological scenarios" centred on environmental conservation and the development of innovations derived from bioinformatics.

49. The processes of technology generation and transfer must comply with three major technology policy criteria: competitiveness, sustainability and equity

- *competitiveness will be expressed in terms of dovetailing research with components of the production chain: on-farm production, post-harvest processing, transport, packaging, storage, marketing and consumption.* Instead of research and transfer targeting distinct items (cattle, grazing land, rice, wheat, etc) the focus should be on the requirements of the principal production systems in localized areas, also taking the social, cultural, natural resource and gender aspects into account when planning technology research and development.

- *sustainability points to a number of priority areas*. These include:
  - land management practices causing deterioration of soil structure,
  - optimizing use of irrigation systems,
  - maximizing the intrinsic production potential of biological resources,
  - protecting genetic resources from erosion,
  - improving the efficiency of environmental supply, replacing the use of synthetic inputs.

- *equity is of vital importance when seeking solutions that make technology accessible, particularly to small producers*. To achieve this:
  - research must be directed towards small farmer production systems,
  - reorganization and diversification alternatives must be developed,
  - environmental and economic impact assessments should be carried out on the technologies.

53. Greater operational and programming emphasis must be placed on participatory research with a productions systems approach; developing biotechnology; strengthening research-transfer and technical assistance links with producers; and developing human resources.

54. Advances in molecular biology and information technology are of special importance for all production and industrial activities based on living beings or their products, particularly

cropping, livestock production, forestry production, agro-industrial production and processing. FAO can enhance and promote these new disciplines in the NARS.

55. The possibility of patenting new technological developments is creating conditions under which national and international private firms can establish relations with the new science, financing research programmes and organizations, or concluding contracts with research groups. FAO should promote examination of biosafety and intellectual property legislation and ensure this is applied and developed equitably.

56. There is every need to urge the LAC countries to form a critical mass of human resources highly skilled in these technologies as an imperative for the productive and technological reorganization of food production and processing in the region. Strengthening such networks as FAO's REDBIO could be one way of achieving this.

ANNEX 1

REGIONAL REPRESENTATION ON THE CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH (CGIAR)

1. The Consultative Group on International Agricultural Research (CGIAR) was set up in 1971 as a joint initiative of FAO, UNDP and the World Bank, as its co-sponsors. The 16th Session of the FAO Conference in 1971 considered the question of representation of the developing countries on the Consultative Group in connection with a proposal to define the procedures for selecting appropriate representatives. The Conference referred this issue to the Council and also decided that the Regional Conferences should be the principal forum for instructing the representatives of each region on its research requirements and priorities.

2. Meanwhile an informal agreement was reached by the Consultative Group for two representatives of each developing region to attend its meetings. Criteria were set for their selection and their remit was decided.

3. The Council approved these proposals at its 59th session in November 1972. Since then the representatives of each region have been elected at the Regional Conferences, for an initial period of two years.

4. During the past 25 years there has been a dramatic increase in the size of developing countries' membership of the CGIAR. At the present time 21 of the 43 member countries of the CGIAR are developing countries. Furthermore, regional organizations such as the Arab Fund for Economic and Social Development, the African, Asian and Inter-American Development Banks as well as IFAD, IDRC and the European Union are playing an increasingly active part, together with the co-sponsors, in setting the agenda for the CGIAR.

5. As part of this changing transitional phase in international agricultural research, the Global Forum on Agricultural Research (GFAR) was established on 31 October 1996 by the representatives of the National Agricultural Research Systems (NARS), Advanced Research Institutions (ARIs), regional and subregional organizations, universities, non-governmental organizations (NGOs), farmers' organizations, the private sector, International Agricultural Research Centres (IARCs), and the donor community. The GFAR received the support of the CGIAR and was considered an ideal means of strengthening interaction between the National Agricultural Research Systems of the developing countries.

6. A steering committee was set up, comprising the chairs of the four regional fora (Asia/Pacific, Latin America and the Caribbean, sub-Saharan Africa, Western Asia and North Africa). A fifth forum for Central Asia and the countries in the Caucasus is currently being discussed. A Secretariat has also been instituted for the NARSs. FAO has played a key role in establishing the GFAR. It also hosts and supports the NARS Secretariat which began operating in mid-1998.

7. As part of these developments, in 1997 CGIAR embarked on a detailed review of the whole system (the 33rd Review). One of the recommendations that came out of this review was to

gradually phase out the present system for regional representation on the CGIAR in consultation with FAO. This recommendation was supported by the Group and, as co-sponsor, FAO was asked to refer implementation of this decision to its Governing Bodies.

8. The decision was based on the fact that about 50% of the membership of the CGIAR now represents the developing countries, and that representation through the NARS and on the Steering Committee of the Global Forum on Agricultural Research is an adequate means of obtaining continuing contributions from the developing countries and regions in relation to the CGIAR research agenda.

9. The 117th Session of the FAO Council on 9-11 November 1999 resolved to formally inform the member countries of the following decision:

- The Council endorsed the CGIAR proposal for the gradual phasing out of the regional representation as it now operated until the current Regional Representatives on the CGIAR have completed their terms.

ANNEX 2

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